through a center pixel among the multiple pixels, a vertical axis passing through the center pixel, and defining the sides of a rhombus whose apexes are the extremities of the horizontal axis and the vertical axis.

A4 cont.

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

After entry of the foregoing amendment, Claims 1-12 remain pending in the present application. Claims 1-2, 6-7 and 12 have been amended. The amendments to the claims are cosmetic in nature, as these changes have simply been in a manner of form. Thus, it is respectfully submitted that the scope of these claims has not been narrowed.[1] The specification has been amended to correct a typographical error. No new matter has been added by the amendment.

By way of summary, the Official Action presents the following issues: Claims 1-4 and 7-10 stand rejected under 35 U.S.C. § 102 as lacking novelty over Muraji et al (U.S. Patent No. 5,260,797 hereinafter Muraji); and Claims 5-6 and 11-12 stand rejected under 35 U.S.C. § 103 as obvious over Muraji in view of Yasushi et al (JP 11-113019, hereinafter Yasushi).

[1]This comment is made in view of the recent Festo decision, which may limit the availability of the doctrine of equivalents, for narrowing amendments for patentability reasons.

REJECTION UNDER 35 U.S.C. § 102

The Official Action has rejected Claims 1-4 and 7-10 under 35 U.S.C. § 102 as being unpatentable over Muraji. The Official Action states that Muraji discloses all of the Applicant's claim limitations. Applicant respectfully traverses the rejection.

Amended Claim 1 recites, *inter alia*, an image display apparatus including:

> "... a gain corrector for correcting chromaticity levels of the image data output by the image processor...
>
> wherein the gain corrector corrects the level of at least one of the plural color component data applied to the pixels in accordance with the positions of the pixels such that, when image data representing an image of a uniform color are output from the image processor, difference in chromaticity of light exiting from the pixels is reduced among the pixels without making luminance of the light exiting from the pixels of the image display device the same at all pixels."

By way of background, image displays are known which employ light modulation panels such as liquid crystal panels for varying the transmittance and reflectance characteristics of component pixels of the panel with respect to light projected therethrough. The light projected through the panel exits the panel as an image-bearing light to be displayed on a display surface of the image device. To ensure that the images are displayed with substantial uniformity of color, the transmittance and reflectance characteristics of the liquid crystal panel should be the same at every pixel location. Yet, due to the non-uniform nature of many components of an image display device, color unevenness is often produced and visually expressed in the resulting image of the device.

In light of the above deficiency in the art, the present invention is provided. With this object in mind, a brief comparison of the claimed invention in view of the cited references are believed to be in order.

Muraji discloses a projection type image display apparatus for providing an image of uniform brightness.[2] In operation, a lamp (51) provides red, green and blue primary color light beams which are respectively provided to image display devices (59) (60) and (61) which are active matrix type liquid crystal display devices. The display devices alter the transmissivity of their corresponding pixels in response to a driving signal from a drive circuit (72) for altering light passing therethrough for producing an image on a display screen (65).[3] The drive signal provided to the respective image display devices is corrected by a video signal correction circuit (69) for altering the signal amplitude in accordance with a control circuit (70). In this way, brightness is made uniform in the entire display regions of the image display devices but the projected image on the screen is lowered in illumination at central parts, as shown by the solid line Lb of Fig. 2(b), in order to compensate for the peripheral dimming characteristics of the projection lenses (62), (63) and (64). Thus, Muraji discloses a method for adjusting color unevenness by compensating for changes in illumination characteristics of projection lenses.[4]

Conversely, Applicant's image display device provides a gain corrector (120) and a controller (130) for altering the chromaticity of plural color component data such that a difference in the chromaticity of light exiting from the pixels of the display is reduced among the pixels without making luminance of the light exiting from the pixels of the image display device the same at all pixels.[5] Muraji does not disclose or suggest an image display apparatus including a gain corrector for correcting chromaticity levels such that a difference in the

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[2]Muraji at column 2, lines 38-46.

[3]Muraji at column 5, lines 54-68.

[4]Muraji at column 6, lines 27-66.

[5]Application at page 9, line 20 through page 12, line 17.

chromaticity of light exiting from the pixels is reduced among the pixels without making luminance of the light exiting from the pixels of the image display device the same at all pixels as presently recited in Claim 1 as amended or any claim depending therefrom.

Claim 7 recites substantially the same limitations as discussed above, as such, Claim 7 and any of the claims depending therefrom is patentably distinguished over Muraji.

Accordingly, Applicant respectfully requests that the rejection of Claims 1-4 and 7-10 under 35 U.S.C. § 102 be withdrawn.

REJECTION UNDER 35 U.S.C. § 103

The Official Action has rejected Claims 5-6 and 11-12 as being unpatentable over Muraji in view of Yasushi. The Official Action states that Muraji discloses all of the Applicant's claim limitations with the exception of segmenting the display and providing correction values which are interpolated. The Official Action cites Yasushi as disclosing these more detailed aspects of the Applicant's invention and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

Yasushi discloses an image processing device for segmenting a display into rectangular areas for processing pixels in accordance with a two-dimension interpolation processing method.

As discussed above, Muraji does not disclose or suggest all the elements of the pending claims. Thus, Muraji either alone or in combination with the teachings of Yasushi cannot be properly asserted as disclosing or suggesting Applicant's amended Claim 1 or any claim depending therefrom.

Further "[a] reference may be said to teach away when a person of ordinary skill in the art, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). To this end, "disclosures in the references that diverge from and teach away from the invention cannot be disregarded", Phillips Petroleum Company v. U.S. Steel Corp., 9 USPQ2d 1461 (Fed. Cir. 1989). As Muraji is directed toward a process by which luminance is altered for correcting color unevenness caused by illumination characteristics of projection lenses, it teaches away from Applicant's device which provides the correction of chromaticity levels without making luminance of the light exiting from the pixels of the image of the display device to be the same at all pixels.

Therefore the Official Action does not provide a *prima facie* case of obviousness with regard to amended Claim 1 or any claim depending therefrom. Likewise, as Claim 7 recites substantially the same limitations as discussed with reference to Claim 1, Applicant submits that Claim 7 or any claim depending therefrom is likewise allowable.

Accordingly, Applicant respectfully requests that the rejection of Claims 5-6 and 11-12 under 35 U.S.C. § 103 be withdrawn.

CONCLUSION

Consequently, in view of the foregoing amendment and remarks, it is respectfully submitted that the present application, including Claims 1-12 as patentably distinguished over the prior art, is in condition for allowance, and such action is respectfully requested at an early date.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
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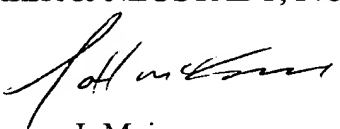

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Amendment Filed on:
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IN THE SPECIFICATION

Please replace the paragraph beginning at page 9, line 20 as follows:

--Hue and saturation of each color can be defined by chromaticity. In suppressing color unevenness, therefore, it suffices to make the chromaticity of the pixels experiencing color unevenness equal to the proper chromaticity. Taking only chromaticity into consideration, one can see that among lights differing in luminance there exist ones that are the same in chromaticity. For instance, the chromaticity of light whose individual colors have a luminance of 50 and the chromaticity of light whose individual colors have a luminance of 45 are in principle the same and the two lights are displayed as the same color, notwithstanding that they differ in luminance. In other words, Method 2 suppresses color unevenness by effecting correction of the image data applied to the pixels so that, when an image of uniform color is displayed, all pixels are made equal in color irrespective of change in luminance level. Although Method 2 may result in luminance scatter (luminance unevenness), it can achieve the same suppression of color unevenness as Method 1. Unlike Method 1, which requires correction of three sets of color data for suppression of color unevenness, Method 2 requires correction of only two color data sets and is therefore advantageous to Method 1 in ease of correction. Moreover, Method 2 can be implemented

using a gain corrector that is structurally simpler than would be needed for implementing Method [2] 1.--

IN THE CLAIMS

Please amend Claims 1-2, 6-7 and 12 as follows.

--1. (Amended) An image display apparatus comprising:

an image processor for outputting image data including plural color component data;

a gain corrector for correcting chromaticity levels of the image data output by the image processor; and

an image display device having a plurality of pixels from each of whose pixels light for forming an image exits in accordance with the corrected image data corrected by the gain corrector;

wherein the gain corrector corrects the level of at least one of the plural color component data applied to the pixels in accordance with the positions of the pixels such that, when image data representing an image of a uniform color are output from the image processor, difference in chromaticity of light exiting from the pixels is reduced among the pixels without making luminance of the light exiting from the pixels of the image display device the same at all pixels.

2. (Amended) An image display apparatus according to claim 1, wherein the gain corrector corrects the chromaticity levels of all but a specific one of the plural color component data applied to the pixels to reduce difference in level between the specific color component data and the other color component data.

6. (Amended) An image display apparatus according to claim 5, wherein the plurality of pixels are segmented into the plurality of small areas by [drawing] a horizontal [line] axis

passing through a center pixel among the multiple pixels, [drawing] a vertical [line] axis passing through the center pixel, and [drawing] defining the sides of a rhombus whose apexes are the extremities of the horizontal [line] axis and the vertical [line] axis.

7. (Amended) An image display method comprising the steps of:

(a) providing image data including plural color component data;

(b) correcting chromaticity levels of the image data; and

(c) producing light representing an image at a plurality of pixels of an image display device in accordance with the corrected image data;

wherein the step (b) includes the step of correcting the level of at least one of the plural color component data applied to the pixels in accordance with the positions of the pixels such that, when image data representing an image of a uniform color are output from the image processor, difference in chromaticity of light exiting from the pixels is reduced among the pixels without making luminance of the light exiting from the pixels of the image display device the same at all pixels.

12. (Amended) An image display method according to claim 11, wherein the plurality of pixels are segmented into the plurality of small areas by [drawing] a horizontal [line] axis passing through a center pixel among the multiple pixels, [drawing] a vertical [line] axis passing through the center pixel, and [drawing] defining the sides of a rhombus whose apexes are the extremities of the horizontal [line] axis and the vertical [line] axis.--